AMENDMENTS TO THE CLAIMS

(IN FORMAT COMPLIANT WITH THE REVISED 37 CFR 1.121)

1. (CURRENTLY AMENDED) An apparatus comprising:

a circuit configured to generate a spread spectrum clock signal in response to an input signal, wherein (i) said circuit comprises a voltage controlled oscillator having an automatically controlled nonlinear gain, (ii) said nonlinear gain varies according to a function curve in response to ~~a~~ changes in frequency of said ~~spread spectrum clock~~ input signal and (iii) ~~a~~ said function curve for said nonlinear gain is determined according to predetermined criteria.

2-4. (CANCELED)

5. (PREVIOUSLY PRESENTED) The apparatus according to claim 1, wherein said function curve is a parabolic curve.

6. (PREVIOUSLY PRESENTED) The apparatus according to claim 1, wherein said function curve is a second degree or higher polynomial.

7. (PREVIOUSLY PRESENTED) The apparatus according to claim 1, wherein a computer program is used to generate said function curve for said gain.

8. (ORIGINAL) The apparatus according to claim 1, wherein said spread spectrum clock signal is generated in response to a reference signal having any frequency from 50 to 170 MHZ.

9. (PREVIOUSLY PRESENTED) The apparatus according to claim 1, wherein said circuit further comprises a single set of ROM codes configured to generate said spread spectrum clock signal having any frequency from 50 to 170 MHZ.

10. (ORIGINAL) The apparatus according to claim 9, wherein said ROM codes determine a frequency modulation profile for said spread spectrum clock signal.

11. (ORIGINAL) The apparatus according to claim 10, wherein said circuit further comprises a divider circuit.

12. (ORIGINAL) The apparatus according to claim 11, wherein said ROM codes control said divider circuit.

13. (CURRENTLY AMENDED) An apparatus comprising:

a voltage controlled oscillator (VCO) configured to generate a spread spectrum clock signal in response to a control signal, wherein (i) said VCO has a nonlinear gain that is automatically controlled ~~and varied~~ (ii) said nonlinear gain varies according to a gain function in response to ~~a~~ changes in frequency of ~~said spread spectrum clock~~ a reference signal and (iii) said

gain function is determined according to predetermined criteria; and

a control circuit configured to generate said control signal in response to (i) a said reference signal, (ii) said spread spectrum clock signal, and (iii) a set of ROM codes.

14. (PREVIOUSLY PRESENTED) A method for adapting a single spread spectrum ROM code to generate a spread spectrum clock signal over a wide continuous range of frequencies comprising the steps of:

(A) determining a nonlinear gain function for a voltage controlled oscillator (VCO) according to predetermined criteria;

(B) adjusting a gain of said VCO according to said gain function in response to changes in frequency of an input signal; and

(C) configuring said VCO to generate said spread spectrum clock signal.

15. (PREVIOUSLY PRESENTED) A method for adapting a single spread spectrum ROM code to generate a spread spectrum clock signal over a wide continuous range of frequencies comprising the steps of:

(A) determining a nonlinear gain function for a voltage controlled oscillator (VCO) according to predetermined criteria;

(B) adjusting a gain of said VCO according to said gain function in response to changes in frequency of an input signal; and

(C) configuring said VCO to generate said spread spectrum clock signal, wherein step A comprises the sub-steps of:

(A-1) selecting a target frequency for said VCO;

(A-2) setting a gain value for said VCO;

(A-3) simulating a spread spectrum phase lock loop comprising said VCO for a number of modulation cycles using said target frequency and said gain value; and

(A-4) calculating an accumulated error deviation between a modulation profile resulting from simulating said spread spectrum phase lock loop and an ideal modulation profile.

16. (ORIGINAL) The method according to claim 15, further comprising the sub-step of:

(A-5) repeating steps A-2 through A-4 for a range of gains.

17. (ORIGINAL) The method according to claim 16, further comprising the sub-step of:

(A-6) repeating steps A-1 through A-5 for a range of frequencies.

18. (ORIGINAL) A computer readable media comprising instructions for performing the sub-steps according to claim 15.

19. (ORIGINAL) A computer readable media comprising instructions for performing the sub-steps according to claim 16.

20. (ORIGINAL) A computer readable media comprising instructions for performing the sub-steps according to claim 17.

21. (PREVIOUSLY PRESENTED) The method according to claim 15, further comprising the step of:

determining a gain value for said VCO that produces a least amount of said error deviation.

22. (PREVIOUSLY PRESENTED) The method according to claim 17, further comprising the step of:

determining a gain function curve for said VCO that produces a least amount of said error deviation for said range of frequencies.

23. (PREVIOUSLY PRESENTED) An apparatus comprising:

a circuit configured to generate a spread spectrum clock signal, wherein (i) said circuit comprises a voltage controlled oscillator having an automatically controlled nonlinear gain, (ii) said nonlinear gain varies in response to a frequency of said spread spectrum clock signal and (iii) a function curve for said nonlinear gain is configured to minimize an error deviation of said spread spectrum clock signal from an ideal modulation profile over a predetermined frequency range.

24. (CURRENTLY AMENDED) ~~The~~ An apparatus ~~according to claim 13, wherein~~ comprising:

a voltage controlled oscillator (VCO) configured to generate a spread spectrum clock signal in response to a control signal, wherein (i) said VCO has a nonlinear gain that is automatically controlled and varied in response to a frequency of said spread spectrum clock signal and (ii) a function curve for said nonlinear gain is configured to minimize an error deviation of said spread spectrum clock signal from an ideal modulation profile over a predetermined frequency range; and

a control circuit configured to generate said control signal in response to (i) a reference signal, (ii) said spread spectrum clock signal, and (iii) a set of ROM codes.